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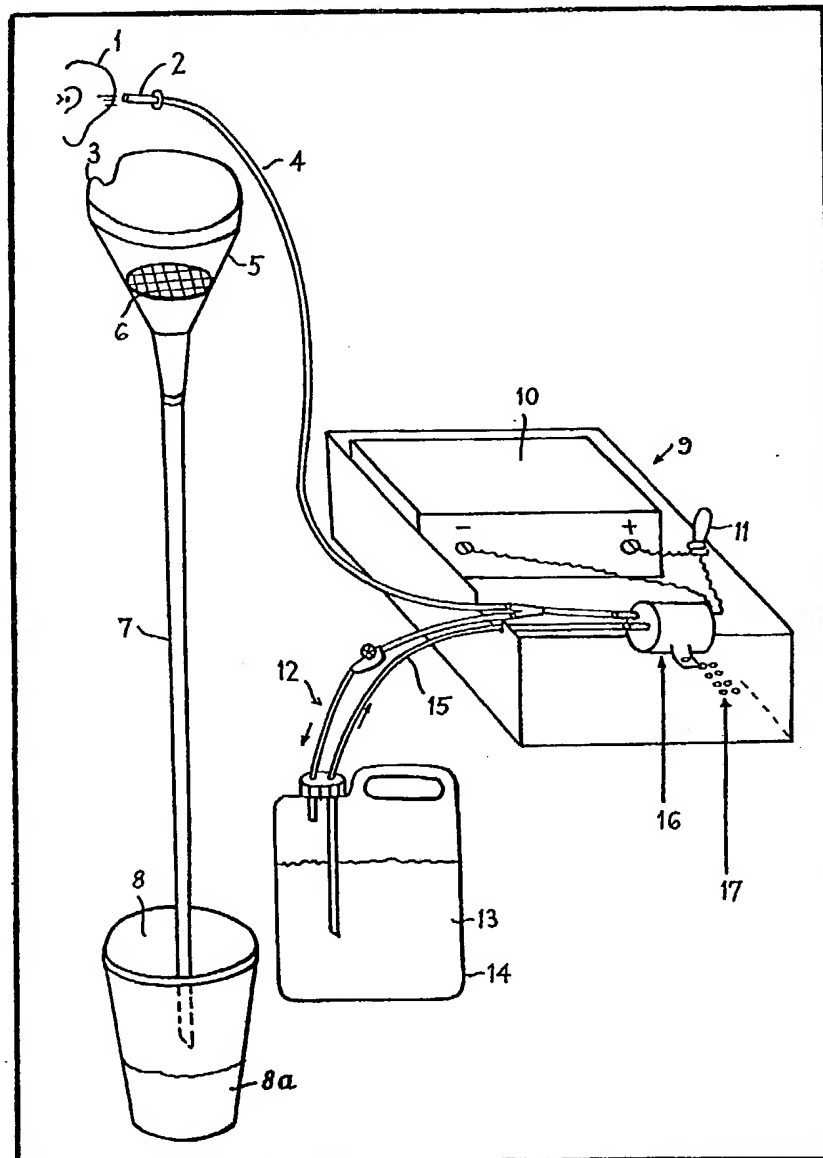
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## (54) Removing wax from a patient's ear

(57) In order to remove wax from a patient's ear, a continuous flow of clean water (or other dewaxing liquid) is directed into the ear from a nozzle placed in the ear canal. Used water and wax discharged from the patient's

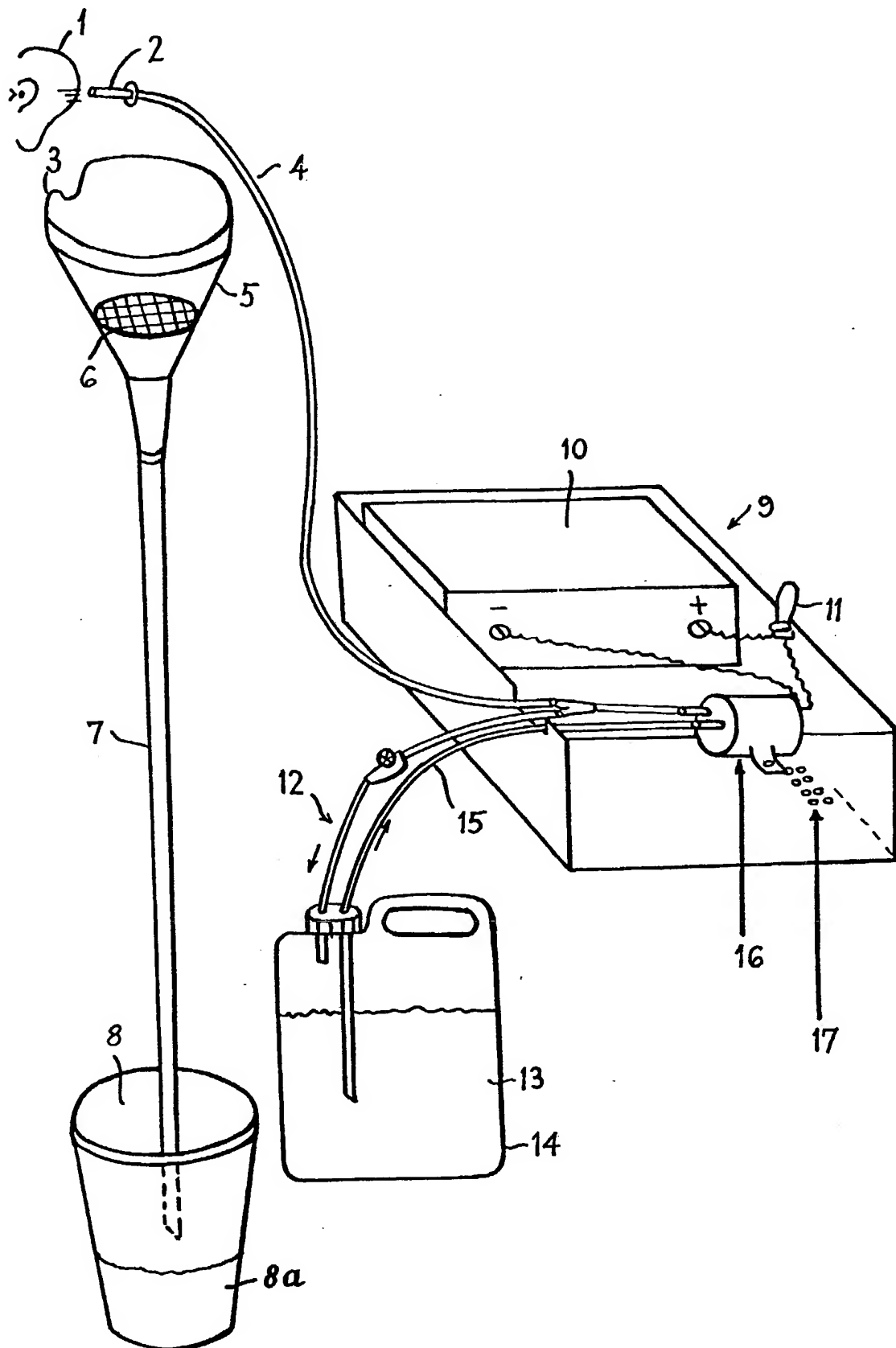
ear is collected in a receptacle positioned below the ear, adjacent the patient's head.

Because of the continuous nature of this dewaxing technique, fewer air bubbles are introduced into the patient's ear and the apparatus is much less tiring to use for the operator.



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## SPECIFICATION

## Earwash instrument with continuous input/drainage

This instrument was designed to meet the need to clean waxy ears, easily and quickly, in General Practice. Its advantage is that it's a completely continuous procedure. Previous methods involved either intermittent hand-held syringe to instil the water, or hand-pumped intermittent flow using a rubber bulb. The outflow from the ear is usually collected in a kidney dish, and this has to be emptied at frequent intervals, again breaking the continuity of the procedure. In this new device the drainage outflow is also continuous; thus the new device has both continuous input of water and continuous drainage.

To successfully clean a wax-blocked human ear requires instillation of a flow of warm water of up to a gallon per ear, at a gentle rate. The wax impairs hearing by preventing the eardrum from vibrating freely, and the wax can also completely block the external ear tube, stopping the sound waves reaching the eardrum.

The new device consists of three main elements:

(1) A *Control Cabinet* containing rechargeable battery, pump, switch and regulator valve, plus pipe work.

(2) A *Water Reservoir* containing body temperature water.

(3) A *Collection System* to catch the water, plus wax, as it escapes from the ear.

The *Control Cabinet* contains a sealed 12 volt rechargeable battery. (12 volts is safer than 250 volts). This drives a small water pump (of the type used for car windscreen washers). The pump is energised via an on/off switch. The flow of water to the ear is controlled by an adjustable valve that allows some of the water to flow back into the reservoir. The larger the return-flow, the less the flow of water to the ear, and vice-versa. The water is directed into the ear through a nozzle. This has a marker at 2.0 cms. to ensure that the nozzle is not put too deeply into the ear canal. (The average depth of the ear canal to the eardrum is 2.5 cms.).

The *Water Reservoir* needs to contain approximately 1 gallon of body-temperature clean water. This lasts for approximately 10 minutes.

The temperature of the water is important or dizziness may be caused in the patient. Water is sucked up from the reservoir by the pump. Excess water is returned to the reservoir via the relief valve, allowing the jet to the ear to be adjusted.

The *Collection System*: Previous systems use kidney dishes, or other receptacles, which have to be emptied at frequent intervals. This system uses a funnel, with "notch" to fit comfortably under the patient's ear. Water is collected in this, and passes through a mesh to catch the wax particles. The water is then collected via a hose into a suitable bucket. With adequate removal of the wax from the water, the drainage water could be fed back into the water reservoir, thus deleting

the need to refill the gallon warm water container, but this is thought to be an unnecessary complication.

The system has proved to work effectively on the patients on whom it has been tried. It is more comfortable for the patients, since less air bubbles are fed into the ear. (These air bubbles are difficult to eliminate with the syringe system). The new method is also much less tiring for the operator. It is also probably slightly faster.

## 75 Key to drawing

1 Patient's Ear; 2 Nozzle for directing water flow into ear; 3 Notch for Patient's Ear; 4 Flexible silicone rubber pipe (1/8" bore); 5 Collection Funnel; 6 Wire mesh to trap wax; 7 Silicone Tubing 3/4" diameter; 8 Water Collection bucket; 8a Waste Water; 9 Small Cabinet for Pump and Battery; 10 Rechargeable 12 volt battery; 11 Switch; 12 Excess flow from pump returned; 13 Warm Water; 14 Water Reservoir; 15 Intake Tube to Pump; 16—12 Volt Electric Pump; 17 Cooling holes in case for motor.

## Claims (Filed on 16th June 1983)

1. Apparatus for use in removing wax from a patient's ear, comprising means including a nozzle for positioning in the ear canal, operable for directing a continuous flow of clean water (or other dewaxing liquid) into the ear, and means, including a receptacle for positioning below the ear adjacent the patient's head, for collecting used water and wax discharged from the patient's ear.

2. Apparatus according to claim 1, wherein the used water and wax collecting means comprises a funnel formed at a location on its peripheral edge with a notch for fitting under the lobe of the patient's ear.

3. Apparatus according to claim 2, wherein a grid extends laterally within the funnel for separating wax from the used water.

4. Apparatus according to any preceding claim, wherein the clean water directing means comprises a reservoir for clean water, a motor-driven pump for continuously pumping water from the reservoir to the nozzle through a delivery line, and a return line connected between a point in the delivery line and the reservoir, there being a controllable flow control valve in the return line, for adjusting the delivery flow rate to the nozzle.

5. Apparatus according to claim 4 as appended to claim 2, wherein the funnel outlet is connected to the reservoir for returning used water to the reservoir for re-use.

6. Apparatus according to any preceding claim, wherein the nozzle has a marker thereon to indicate a maximum depth of insertion of the nozzle into the patient's ear.

7. Apparatus for use in removing wax from a patient's ear, substantially as hereinbefore described with reference to the accompanying drawing.

8. A method of removing wax from a patient's ear, in which a continuous flow of clean water (or

other dewaxing liquid) is directed into the ear from a nozzle placed in the ear canal, and used water and wax discharged from the patient's ear is collected in a receptacle positioned below the ear adjacent the patient's head.

9. A method according to claim 8, wherein clean warm water is used at a temperature that is comfortable to the patient and not anticipated to

cause dizziness.

10 10. A method of removing wax from a patient's ear, according to claim 8 and substantially as hereinbefore described.

Amendments to claims filed on 5 Sept 1983  
Claims 8, 9, 10 deleted

15 **New or amended claims:— None**

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